

record some of the results of this taxonomic research—thus supplementing the paper¹ published fifteen years ago.

For the publication of this paper, I am indebted to Dr. George T. Moore, Director of the Missouri Botanical Garden.

Senecio aberrans Greenm. in Ann. Mo. Bot. Gard. 10: 73. 1923.

COLOMBIA: "New Granada," Acaña, 10 July, 1845, *Purdie*, s.n. (Kew Hb.).

PERU: near Tarapota, coll. of 1855–56, *R. Spruce*, s.n. (Kew Hb.).

Senecio abietinus Willd. ex Wedd. Chlor. And. 1: 100. 1855.

COLOMBIA: without definite localities, coll. of 1760–1808, *José Celestino Mutis*, nos. 286, 1785, 3027, 4811 (U. S. Nat. Hb.); Bogotá, Guadeloupe, without date, *Goudot*, no. 1 (Mus. Nat. Hist. Hb., Vienna, and Delessert Hb., Geneva); Bogotá, without date, *Linden*, no. 1250 (Delessert Hb.); Páramo de Usme, coll. of 1922, *Bro. Ariste-Joseph*, s.n. (U. S. Nat. Hb., sheet no. 1122518).

Senecio adenotrichus DC. Prodr. 6: 416. 1837; Greenm. in Ann. Mo. Bot. Gard. 10: 75. 1923.

CHILE: San Felipe, Oct., 1923, and Dec., 1925, *Bro. Claude-Joseph*, nos. 2052 and 3821, respectively (U. S. Nat. Hb.).

Senecio algens Wedd. Chlor. And. 1: 104. 1855.

Senecio algens var. *major* Schz. Bip. in Bull. Soc. Bot. Fr. 12: 80. 1865, name only; *Linnaea* 34: 531. 1866, name only.

Senecio algens var. *minor* Schz. Bip. in Bull. Soc. Bot. Fr. 12: 80. 1865, name only; *Linnaea* 34: 530. 1866, name only.

BOLIVIA: vicinity of Sorata, alt. 4500–5000 m., April, 1860, *G. Mandon*, no. 129 (N. Y. Bot. Gard. Hb. and Mus. Nat. Hist. Hb., Vienna), *co-types* of var. *major*; vicinity of Sorata, alt. 3800–3900 m., Jan.–April, 1858, *G. Mandon*, no. 106 (N. Y. Bot. Gard. Hb. and Mus. Nat. Hist. Hb., Vienna), *co-types* of var. *minor*.

¹ Greenman, J. M. Studies of South American Senecios—I. Ann. Mo. Bot. Gard. 10: 73–110, pls. 3–8. 1923.

These two varietal names were listed without descriptions, and thus represent *nomina nuda* without nomenclatorial status. A careful examination of duplicate material on which the varieties were founded shows that the plants concerned are merely very slight variations and the names should be merged in synonymy under the species.

Senecio (§ Streptothamni) Andrei Greenm., n.sp.

Frutex scandens glabrus; foliis petiolatis, ovatis vel lanceolato-ovatis, 2.5–5.5 cm. longis, 1–3 cm. latis, mucronato-acutis, remote denticulatis, basi cuneatis vel rotundatis, utrinque glabris, valde reticulato-venosis; inflorescentiis terminalibus; capitulis heterogamis, ca. 1 cm. altis; involucris anguste campanulatis, parce calyculatis; involucris bracteis 8, linearibus vel oblongo-lanceolatis, 4.5–5 mm. longis, glabris apice penicillato excepto, aliquanto venosis; floribus liguliferis 5, ligulis anguste oblongis, ca. 9 mm. longis, 1.5–2 mm. latis, pallido-flavis, tubo gracile, quam pappi setis brevior; floribus disci 15–20, flavis; achaeniis striatis, glabris.

Suffruticose, scandent, glabrous throughout; leaves petiolate, petioles 5–10 mm. long, blade ovate to lanceolate-ovate, 2.5–5.5 cm. long, 1–3 cm. broad, cuneate to rounded at the base, remotely and cartilaginously denticulate, mucronate-acute, glabrous on both surfaces, prominently netted-veined; inflorescence terminal; heads heterogamous, about 1 cm. high; involucre narrowly campanulate, sparingly calyculate; bracts of the involucre 8, linear to oblong-lanceolate, 4.5–5 mm. long, glabrous except at the penicillate tip, rather conspicuously veined; ray-flowers 5, rays narrowly oblong, about 9 mm. long, 1.5–2 mm. broad, pale yellow, tube slender and shorter than the pappus; disk-flowers 15 to 20, yellow; achenes striate, glabrous.

ECUADOR: Loja-Zamora, alt. 3000–3500 m., 1 Dec., 1876, *Ed. André*, no. 4520 (Gray Hb., TYPE, Kew Hb.).

This species is most closely related to *S. dictyophlebius* Greenm., from which it differs in having smaller heads, shorter involucre bracts, and a closer mesh of the leaf-venation.

Senecio apiculatus Schz. Bip. ex Wedd. Chlor. And. 1: 128. 1855.

VENEZUELA: Caracas, coll. of April, 1842, *Linden*, no. 478 (Mus. Nat. Hist. Hb., Vienna, and British Mus. Hb.); Paranadi la Culata, *Moritz*, no. 137 (British Mus. Hb.).

Senecio arboreus (HBK.) Greenm. in Ann. Mo. Bot. Gard. 10: 77. 1923.

Cacalia arborea HBK. Nov. Gen. & Sp. Pl. 4: 163. pl. 359. 1820.

COLOMBIA: in mountains near Bogotá, 18 Nov., 1852, *Holton*, no. 247 [347] (N. Y. Bot. Gard. Hb.); Delicias, Popoyán, *Lehmann*, no. B.T. 943 (Gray Hb., Field Mus. Hb., N. Y. Bot. Gard. Hb., and Leiden Hb.); same locality, *Lehmann*, no. B.T. 946 (Gray Hb. and Leiden Hb.); Caucas, *Lehmann*, no. B.T. 499 (N. Y. Bot. Gard. Hb.); head-waters of Rio Lopez, Rio Polo Basin, Tierra Adentro, alt. 2500–3000 m., Jan., 1906, *Pittier*, nos. 1083 and 1086 (U. S. Nat. Hb.); Old Quindio Trail, “Magana” to Quindio Pass, Dep’t. of Caldas, *Hazen & Killip*, no. 9167 (U. S. Nat. Hb.); “in der oberes Waldregionen an der Östhängen der Central-Andes von Popayán,” alt. 2800–3400 m., March–April, *Lehmann*, no. 5203 (Berlin Hb. and British Mus. Hb.).

Senecio arbutifolius HBK. Nov. Gen. & Sp. Pl. 4: 182. 1820.

COLOMBIA: coll. of 1760–1808, *José Celestino Mutis*, no. 648 (U. S. Nat. Hb.).

Senecio argenteus Kunze in Poepp. “Coll. Pl. Chil. 3, p. 192” [Coll. pl. exsic. Chil. 3, no. 192]; DC. Prodr. 6: 415. 1837.

CHILE: without definite locality, *Bertero*, no. 620 (Mo. Bot. Gard. Hb.); Terra Pehuerchium, Dec., 1854, *Lechler*, no. 2893 (Mus. Nat. Hist. Hb., Vienna); Cordillera de Maule, coll. of 1856–1857, *Germain*, s.n. (Mus. Nat. Hist. Hb., Vienna); ash-slope of Volcan Osorno, alt. 200–250 m., 13–15 Feb., 1925, *F. W. Pennell*, no. 12639 (Field Mus. Hb.).

Senecio Aschenbornianus Hieron. in Engl. Bot. Jahrb. 28: 642. 1901.

COLOMBIA: on trees in field, “Canaan,” Mt. Purace, Dep’t. of El Cauca, alt. 3100–3300 m., *Pennell & Killip*, no. 6509; same locality, *Killip*, no. 6737 (U. S. Nat. Hb.).

Senecio attenuatus Schz. Bip. in Bull. Soc. Bot. Fr. 12: 80. 1865, name only; in Linnaea 34: 531. 1866, name only; Rusby in Mem. Torr. Bot. Club 3: 63. 1893.

BOLIVIA: La Paz, alt. 3750 m., 24 May, 1906, *O. Buchtien*, no. 73 (N. Y. Bot. Gard. Hb.); La Paz, alt. 3700 m., March, 1913, *O. Buchtien*, s.n. (Mo. Bot. Gard. Hb. and N. Y. Bot. Gard. Hb.); La Paz, alt. 3800 m., 18 March, 1919, *O. Buchtien*, no. 380 (Mo. Bot. Gard. Hb.).

The specimens here cited give records of this species in addition to those recorded by Professor Rusby.

Senecio baccharidiflorus Rusby in Bull. N. Y. Bot. Gard. 4: 397. 1907.

BOLIVIA: Unduavi, Sept., 1894, *M. Bang*, no. 2494 (N. Y. Bot. Gard. Hb.), TYPE; Unduavi, Noryungas, alt. 3300 m., Nov., 1910, *O. Buchtien*, nos. 3041 and 3042 (N. Y. Bot. Gard. Hb.); Gachapata, Aug., 1854, *Lechler*, no. 2608 (Kew Hb.).

Senecio bahioides Hook. & Arn. in Hook. Jour. Bot. 3: 336. 1841, including α *lanosus* and β . *glaber*.

CHILE: Renca and Quintero, *Bridges*, no. 388 (Mus. Nat. Hist. Hb., Vienna); without definite locality, *Cuming*, no. 618 (Mus. Nat. Hist. Hb., Vienna).

Senecio bogotensis Spreng. Syst. 3: 556. 1826; DC. Prodr. 6: 423. 1837.

COLOMBIA: 100 miles northwest of Bogotá, region of La Chapon, State of Boyaca, alt. 4500 ft., 25 July, 1932, *A. E. Lawrance*, no. 356 (Mo. Bot. Gard. Hb.); in forest, Ibaque to Rio Coello, near Quindio Trail, Dep't. of Tolima, 6 Aug., 1912, *Tracy E. Hazen*, no. 9644 (U. S. Nat. Hb.).

Mr. Lawrance states that this plant is a "creeper, height [length] of 40–50 ft., diameter $\frac{1}{2}$ –1 inch, flowers red."

Senecio Bowmani R. E. Fries in Ark. för Bot. 5¹³: 26, pl. 2, figs. 6–11. 1906.

ARGENTINA: Tucuman, Prov. of Tucuman, 8 Sept., 1908, *M. Lillo*, no. 8493 (Mo. Bot. Gard. Hb.); Parque, Aconquija, alt. 600 m., 21 Sept., 1917, *R. Schreiter*, no. 73 (Mo. Bot. Gard.

Hb.); Orilla del Basque, 29 Sept., 1924, *Venturi*, no. 2572 (Mo. Bot. Gard. Hb.); Sierra de la Candelaria, alt. 900 m., 6 Sept., 1929, *Venturi*, no. 9471 (Mo. Bot. Gard. Hb.).

Senecio brachycodon Baker in Mart. Fl. Bras. 6³: 319. 1884; Greenm. in Ann. Mo. Bot. Gard. 10: 78. 1923.

BRAZIL: in wet woods, Itatiaya, State of Rio de Janeiro, alt. 2100 m., 18 March, 1922, *E. W. D. & Mary Holway*, no. 1865 (U. S. Nat. Hb.); in mossy fields above timber line, alt. 2100–2200 m., 30 April–4 May, 1925, *Agnes Chase*, no. 9684 (Mo. Bot. Gard. Hb.).

Senecio brachycodon Baker, *S. myriocephalus* Baker, *S. pelucidinervis* Schz. Bip., and *S. peregrinus* Griseb. constitute a complex which needs further study.

Senecio Brittonianus Hieron. in Engl. Bot. Jahrb. 29: 72. 1900.

Senecio Sprucei Britton in Bull. Torr. Bot. Club 19: 265. 1892, not *S. Sprucei* Klatt in Leopoldina 24: 128. 1887.

PERU: "in montibus Maymensibus prope Tavalosus," July, 1856, *Spruce*, no. 4811 (Kew Hb., TYPE, photograph in Mo. Bot. Gard. Hb.); "prope Tarapota, Peruviae orientales," coll. of 1855–1856, *Spruce*, no. 4811 (Brussels Hb. and Gray Hb.).

BOLIVIA: near Yungas, alt. 4000 ft., coll. of 1885, *Rusby*, no. 1695 (N. Y. Bot. Gard. Hb.); Mapiri, July–Aug., 1892, *Bang*, no. 1513 (N. Y. Bot. Gard. Hb., Phil. Acad. Nat. Sci. Hb., and Mo. Bot. Gard. Hb.); Santa Cruz, alt. 5000 ft., 24 Aug., 1902, *R. S. Williams*, no. 1457 (N. Y. Bot. Gard. Hb.); region of Mapiri, alt. 570–750 m., Sept. and Nov., 1907, *O. Buchtien*, nos. 1559 and 1560 (N. Y. Bot. Gard. Hb.).

Senecio canabinaefolius Hook. & Arn. in Hook. Jour. Bot. 3: 341. 1841; Greenm. in Ann. Mo. Bot. Gard. 4: 289. 1917.

ARGENTINA: Cerro de Medina, Prov. of Tucuman, alt. 1600 m., 22 March, 1914, *Lillo*, no. 15976 (Mo. Bot. Gard. Hb.); El Suncha, alt. 2500 m., coll. of 1915, *Jørgensen*, no. 1083 (Mo. Bot. Gard. Hb.); La Hoyata, alt. 1300 m., 14 Dec., 1900, *Lillo*, no. 2611 (Mo. Bot. Gard. Hb.); Puerto Castil., Prov. of Salta, 24 Dec., 1929, *Venturi*, no. 1008 (Mo. Bot. Gard. Hb.).

Senecio chachapoyensis Greenm., n.sp.

Verisimiliter frutex; caulibus lignosis, striatis, fulvo-hirtello-papillosis; foliis alternis, petiolatis, oblongo-lanceolatis, 5–10 cm. longis, 1–3 cm. latis, basi in petiolum sensim angustatis, ad apicem acutis, denticulatis, utrinque glabris, subtus aliquanto pallidioribus conspicue venosisque, nervis lateralibus ab nervo medio latissime divergentibus; petiolis usque ad 1 cm. longis; inflorescentiis terminalibus, paniculatis, multicapitatis; capitulis parvis, ca. 5 mm. altis, homogamis; involucris anguste campanulatis, breviter calyculatis; involucri squamis 8, glabris; floribus disci ca. 10; achaeniis glabris.

Stem ligneous, striate, tawny, hirtellous-papillose; leaves oblong-lanceolate, including the slender petiole 5–10 cm. long, 1–3 cm. broad, narrowed at the base into a petiole (1 cm. or less in length), denticulate, acute, glabrous on both surfaces, somewhat paler and prominently veined beneath, the lateral veins forming almost a right angle with the midrib; inflorescence a terminal many-headed panicle; heads small, about 5 mm. high, homogamous; involucre cylindrical, short-calyculate; bracts of the involucre 8, glabrous; disk-flowers about 10; achenes glabrous.

PERU: "Chacapoyas" [Chachapoyas], coll. of 1835, *Alexander Mathews*, no. 1356 (Kew Hb., TYPE, photograph in Mo. Bot. Gard. Hb.).

The relationship of this species is with *S. theaefolius* Benth., *S. arboreus* (HBK.) Greenm., and *S. chaquiroensis* Greenm. From the first species it differs in having a hirtellous-papillose instead of a glabrous stem; and from the other two species mentioned it differs in having the lateral veins almost at right angles with the midrib.

Senecio (§ Streptothamni) dictyophlebius Greenm., n.sp.

Senecio volubilis Schz. Bip. in Bull. Soc. Bot. Fr. 12: 80. 1865, name only, and in Linnaea 34: 531. 1866, name only, not *S. volubilis* Hook.

Frutex scandens; foliis alternis, petiolatis, ovatis vel ovato-oblongis, 2–6 cm. longis, 1.5–4 cm. latis, basi rotundatis vel subcordatis, integris aut crenato-dentatis, ad apicem acutis,

utrinque glabris, subtus pallidioribus et conspicue reticulato-venosis cum venis semipellucidis; petiolis usque ad 1 cm. longis; inflorescentiis terminalibus, subcorymboso-cymosis, paucicapitatis; capitulis heterogamis, radiatis, ca. 10–12 mm. altis; involucris anguste campanulatis, parce calyculatis, glabris; involucri squamis plerumque 8(8–13), linearibus vel lineari-oblongis, 7–8 mm. longis; floribus femineis 8–10, ligulatis, ligulis anguste oblongis, 6–7 mm. longis, flavis; floribus disci 15–20; achaeniis glabris.

Stem scandent, ligneous; leaves alternate, petiolate, ovate to ovate-oblong, 2–6 cm. long, 1.5–4 cm. broad, rounded to subcordate at the base, entire to sparingly crenate-dentate, glabrous on both surfaces, paler and rather conspicuously netted-veined beneath, veins semipellucid; petioles 1 cm. or less in length; inflorescence terminating the stem and branches in few-headed subcorymbose cymes; heads heterogamous, radiate, about 10–12 mm. high; involucre narrowly campanulate, sparingly calyculate, glabrous; bracts of the involucre usually 8 (8–13), linear to linear-oblong, 7–8 mm. long; ray flowers 8–10, rays narrowly oblong, 6–7 mm. long, yellow; disk-flowers 15–20; achenes glabrous.

BOLIVIA: vicinity of Sorata, alt. 3400 m., 31 Dec., 1858, *G. Mandon*, no. 146 (Kew Hb., TYPE, Delessert Hb., Geneva, Brussels Hb., Mus. Nat. Hist. Hb., Vienna, and N. Y. Bot. Gard. Hb., photograph of type in Mo. Bot. Gard. Hb.).

Several collections of this species were made by Mandon in the vicinity of Sorata, Bolivia, at altitudes from 3000 to 3400 meters above sea-level, during the years 1857 to 1859. These plants will be found in many herbaria under the name "*Senecio volubilis* Hooker," and most of them bear the number 146. *Senecio volubilis* Hooker, however, belongs to quite another natural group of species.

Senecio ellipticifolius Hieron. in Engl. Bot. Jahrb. 28: 637. 1901.

COLOMBIA: region of Popayán, alt. 2600–3200 m., *F. C. Lehmann*, no. 8508 (Berlin Hb., photograph and fragment in Mo. Bot. Gard. Hb.); S. Antonio, *Ed. André*, no. K 1293 (Kew Hb.

and N. Y. Bot. Gard. Hb.) ; Viejes Ocaña, 29 March, 1876, *Ed. André*, no. *K 1294* (Kew Hb.) ; 100 miles northwest of Bogotá, region of Upper Chapon, state of Boyaca, alt. 6500 ft., 8 Aug., 1932, *Alexander E. Lawrance*, no. 398 (Mo. Bot. Gard. Hb.).

Senecio ellipticus DC. Prodr. 6: 420. 1837; Mart. Fl. Bras. 6³: 318. 1884.

BRAZIL: without specific locality, *collector unknown*, no. 148 (Mo. Bot. Gard. Hb.) ; Serro do Mar, *Dusén*, nos. 635a and 10160 (Mo. Bot. Gard. Hb.) ; Campo Grande, São Paulo, *Brade*, no. 6645 [*Hoehne* no. 6712] (Mo. Bot. Gard. Hb.) ; vicinity of Itatiaya, *Rose & Russell*, no. 20542 (U. S. Nat. Hb.).

Senecio eristhalifolius Schz. Bip. ex Baker in Mart. Fl. Bras. 6³: 321, *pl.* 87. 1884.

BRAZIL: Juiz de Fóra, Minas Geraes, alt. 700 m., 23 Feb., 1925, *Agnes Chase*, no. 8613 (Mo. Bot. Gard. Hb.).

Senecio evacoides Schz. Bip. in Bonplandia 4: 55. 1856, name only; Wedd. Chlor. And. 1: 105. 1855, with description; Gray in Proc. Am. Acad. 5: 143. 1861.

PERU: "an sommet de Cordillère d'Ayapata, Prov. de Carabaya," alt. 4500 m., *Lechler*, *s.n.* (Berlin Hb.) ; Casa Caucha, Alpamarca, alt. 10000–16000 ft., *U. S. Exploring Expedition under command of Capt. Wilkes*, *s.n.* (U. S. Nat. Hb.) ; Andes of Peru, alt. 15000 ft., *Lobb*, *s.n.* (British Mus. Hb.) ; without definite locality, coll. of 1865–1867, *Richard Pearce*, *s.n.* (British Mus. Hb.) ; "Patagonia," *Lobb* (British Mus. Hb.).

Senecio Georgianus Greenm., n. name.

Senecio Hallii Hieron. in Engl. Bot. Jahrb. 21: 358. 1895, including forma α and forma β , not *S. Hallii* Britt. in Trans. N. Y. Acad. Sci. 9: 11. 1889.

ECUADOR: "Calcitpungo, in Páramo del Alao haud procul ab urbe Riobamba," alt. 4200 m., Nov., 1872, *A. Stübel*, no. 259 (Berlin Hb.).

Senecio Greenmanianus Hieron. in Engl. Bot. Jahrb. 28: 643. 1901.

VENEZUELA: Merida, *Moritz*, no. 1384 (Berlin Hb., TYPE,

photograph and fragment in Mo. Bot. Gard. Hb.) ; Quebrada el Yoyo, Merida, alt. 3800 m., 12 April, 1930, *Gehriger*, nos. 71 and 72 (Mo. Bot. Gard. Hb.) ; Laguna Mucuy, Merida, alt. 4200–4300 m., 19 April, 1930, *Gehriger*, no. 94 (Mo. Bot. Gard. Hb.) ; Páramo de Sumusica, State of Táchira, alt. 3100 m., 19 Jan., 1912, *Alfredo Jahn*, no. 51 (U. S. Nat. Hb.) ; Páramo Quiorá, alt. 3224 m., 8 Oct., 1921, *Alfredo Jahn*, no. 732 (U. S. Nat. Hb.).

Senecio Gürkei Hieron. in Engl. Bot. Jahrb. 28: 646. 1901.

COLOMBIA: "Nova Granata," *Triana* (Berlin Hb.), TYPE; Mediacion-Quindio, 7 March, 1876, *Ed. André*, no. 2143 (Kew Hb., Field Mus. Hb.).

The André specimen in the Kew Herbarium is accompanied by a field label on which is written the following note: "Arbor cic.—3ⁿ alt. flor. lutei." The species bears some resemblance to *Senecio grandifolius* Less.

Senecio Hillii Greenm., n. sp.

Frutex scandens; caulibus ramisque striatis, floccoso-tomentosis; foliis alternis, petiolatis, lanceolato-ellipticis, 5–10 cm. longis, 2–4.5 cm. latis, obtusis, integris et marginibus revolutis, juventate supra sparse tomentulosis sed mox glabratiss, subtus dense et persistenter floccoso-tomentosis; petiolis 5–8 mm. longis; inflorescentiis terminalibus, paniculatis, pluri-capitatis; capitulis heterogamis, subdiscoideis, 10–13 mm. altis; involucris campanulatis, valde calyculatis, bracteolis plerumque 5, elliptico-ovatis, 5–7 mm. longis, 2–3 mm. latis; involucri squamis oblongo-lanceolatis, 6–7 mm. longis, 2–3.5 mm. latis, involucri squamis bracteolisque valde et permanenter tomentosis; capituli floribus exterioribus (10–12) multo reducti, gracilibus, curvatis, inequaliter 3–5-dentatis, dentibus angustis, crassiusculis, obtusis; capituli floribus interioribus ca. 40, corollis tubulo-campanulatis, equaliter 5-dentatis; pappi setis albidis quam corollis disci brevioribus; achaeniis glabris.

Stem scandent, branched, ligneous, striate, floccose-tomentose; leaves alternate, petiolate, lanceolate-elliptic, 5–10 cm. long, 2–4.5 cm. broad, obtuse, entire, revolute-margined,

slightly tomentulose in the early stages but soon glabrate above, densely and permanently floccose-tomentose beneath; petioles 5–8 mm. long; inflorescence a terminal many-headed panicle; heads heterogamous, subdiscoid, 10–13 mm. high; involucre campanulate, conspicuously calyculate with few (about 5) elliptic-ovate 5–7 mm. long and 2–3 mm. broad bracteoles; bracts of the involucre oblong-lanceolate, 6–7 mm. long, 2–3.5 mm. broad, bracts and bracteoles densely and permanently floccose-tomentose; outermost flowers of the head (10–12) reduced, subradiate, corolla tubular, slender, curved, unequally 3–5-dentate, teeth narrow, more or less thickened at the obtuse apex; disk-flowers about 40, corollas tubular-campanulate, equally 5-toothed; pappus white, shorter than the corolla; achenes glabrous.

ECUADOR: "in monte Titaicun," alt. 11000 ft., Nov., 1858, *R. Spruce*, no. 5587 (Kew Hb., TYPE, British Mus. Hb., Gray Hb.).

This species has the habit of *Senecio disciformis* Hieron., to which it is evidently closely related, but it differs from that species in having larger and fewer heads, broader involucre bracts and bracteoles, and longer peduncles.

It is a pleasure to name this plant in honor of Sir Arthur W. Hill, Director of the Royal Botanic Gardens, Kew, England.

Senecio Hypsobates Wedd. Chlor. And. 1: 91. 1855.

COLOMBIA: Dep't. of Caldas, Páramo del Quindio, Cordillera Central, alt. 3700–4400 m., 13 Aug., 1922, *Francis W. Pennell*, no. 9804 (U. S. Nat. Hb.); same locality, 15–20 Aug., 1922, *Francis W. Pennell & Tracy Hazen*, no. 10008 (U. S. Nat. Hb.).

A specimen collected at Azufral (probably Colombia) by *Ed. André*, no. K1291 (N. Y. Bot. Gard. Hb.) is unquestionably also conspecific.

Senecio Klattii Greenm. in Ann. Mo. Bot. Gard. 1: 281. 1914.

S. roseus Klatt in Ann. k.k. Naturhist. Hofmus. Wien 9: 366. 1894, not *S. roseus* Schz. Bip. in Flora 28: 498. 1845.

PERU: without specific locality, *Besser*, s.n. (Berlin Hb., photograph in Mo. Bot. Gard. Hb.); Mt. Tunari, coll. of 1891,

Bang, no. 1046 (N. Y. Bot. Gard. Hb., Phil. Acad. Nat. Sci. Hb., and Mo. Bot. Gard. Hb.).

Senecio Klugii Greenm., n. sp.

Frutex erectus, 3 m. altus; ramis ramulisque brunneis, striatis, albo-tomentulosis; foliis alternis, petiolatis, elliptico-lanceolatis aut elliptico-ob lanceolatis, 10–15 cm. longis, 3–6 cm. latis, basi integris cuneatisque, sinuato-serrato-denticulatis, breviter acuminatis, utrinque arachnoideo-tomentulosis, plus minusve glabris, subtus prominenter venosis; inflorescentiis terminalibus, strictis, paniculato-cymosis; capitulis heterogamis, ca. 12 mm. altis, radiatis; involucri campanulatis, calyculatis; involucri squamis plerumque 13, linearibus vel oblongo-lanceolatis, 6–7 mm. longis, flocculoso-tomentulosis; floribus femineis 10–13, ligulatis, ligulis anguste oblongis, 10–13 mm. longis, flavis; floribus disci 30–40, flavis; achaeniis glabris.

Shrub, 3 m. high; branches brownish, striate, white-tomentulose; leaves petiolate, petioles 5–12 mm. long, leaf-blade obovate-lanceolate to elliptic-lanceolate, 1–1.5 dm. long, cuneate, usually entire towards the base, sinuate-dentate to serrulate towards the acuminate acute apex, arachnoid-tomentulose on both surfaces in the younger stages, more or less glabrate except on the midrib and lateral veins, rather prominently veined beneath; inflorescence a terminal strict paniculate cyme; bracts of the inflorescence linear-attenuate; heads heterogamous, about 12 mm. high, radiate; involucre campanulate, calyculate; bracts of the involucre 13, linear to narrowly oblong-lanceolate, 6–7 mm. long, flocculose-tomentulose; ray-flowers 10–13, rays narrowly oblong, 10–13 mm. long, yellow; disk-flowers 30–40, yellow; achenes glabrous.

PERU: mountain forest, Zepelacio, near Moyobamba, Dep't. of San Martin, alt. 1200–1600 m., Dec., 1933, *G. Klug*, no. 3466 (Mo. Bot. Gard. Hb. and U. S. Nat. Hb.), TYPE; without definite locality, coll. of 1835, *A. Mathews*, s.n. (Kew Hb.).

This species in general habit, particularly in the strict character of the inflorescence, resembles *S. aberrans* Greenm., *S. coroicensis* Rusby, and *S. yungacensis* Britton; but it is readily

distinguished from the first by having a shorter involucre, and from the other two species by characters of the pubescence.

Senecio laricifolius HBK. Nov. Gen. & Sp. Pl. 4: 185. 1820; DC. Prodr. 6: 424. 1837.

S. morrensis Hieron. in Engl. Bot. Jahrb. 21: 362. 1895.

PERU: Dep't. of San Martin, Zepelacio, near Moyobamba, mountain forest, alt. 1200–1600 m., Oct., 1933, *G. Klug*, no. 3279 (Mo. Bot. Gard. Hb.).

Although the writer has not examined the original or type specimen of this species, yet the collection cited above agrees in all details with the published descriptions, and there can be no doubt of the identity.

Senecio ledifolius (HBK.) DC. Prodr. 6: 421. 1837.

Senecio vernicosus var. *microphyllus* Wedd. Chlor. And. 1: 94. 1855.

COLOMBIA: Volcan de Tolima, alt. 4000–4300 m., *Linden*, no. 899 (Mus. Nat. Hist. Hb., Vienna); grassy páramo, alt. 4100–4400 m., 15–20 Aug., 1922, *Pennell & Hazen*, no. 9836 (U. S. Nat. Hb.).

Senecio Lindenii Schz. Bip. ex Wedd. Chlor. And. 1: 101. 1855.

Senecio ledifolius β *Schlimii* Wedd. Chlor. And. 1: 94. 1855.

COLOMBIA: without definite locality, coll. of 1842, *Linden*, nos. 721, 735, and 1248 (Mus. Nat. Hist. Hb., Vienna); without definite locality, *Linden*, s.n. (N. Y. Bot. Gard. Hb.); Bogotá, coll. of 1917, *Bro. Ariste-Joseph*, no. A 13 (U. S. Nat. Hb.); Guadalupe, near Bogotá, *Bro. Ariste-Joseph*, no. A.122 (U. S. Nat. Hb.); mountains east of Las Vegas, Dep't. of Santander, alt. 3000–3300 m., 20–21 Dec., 1926, *Killip & Smith*, no. 15823 (Mo. Bot. Gard. Hb.); vicinity of California, alt. 3000 m., 11–27 Jan., 1927, *Killip & Smith*, no. 16906 (Mo. Bot. Gard. Hb.); western slope of Páramo Rico, alt. 3000–3600 m., 15–19 Jan., 1927, *Killip & Smith*, no. 17214 (Mo. Bot. Gard. Hb.); vicinity of Vetás, 16–20 Jan., 1927, *Killip & Smith*, no. 17268 (Mo. Bot. Gard. Hb.); Páramento de las Puenteas, above La Baja, alt. 3500–3700 m., 25 Jan., 1927, *Killip & Smith*, no. 18207 (Mo. Bot.

Gard. Hb.); Páramo de las Coloradas, above La Baja, alt. 3000–4100 m., 27 Jan., 1927, *Killip & Smith*, no. 18429 (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.); Páramo de Romeral, alt. 3800–4100 m., 29–30 Jan., 1927, *Killip & Smith*, no. 18561 (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.); La Baja, Prov. of Pamplona, alt. 8000–9000 ft., *Funck & Schlim*, no. 1291 (Brussels Hb.).

Senecio Macbridei Greenm., n. sp.

Herbaceous perennis, arboreus, 1.5 m. altus; ramis fusco-brunneis, aliquanto striatis, sparse hirtellis aut glabris; foliis alternis, petiolatis, oblongo-lanceolatis vel elliptico-lanceolatis, 6.5–15 cm. longis, 2–6 cm. latis, acuminatis, acutis, integris vel paulo dentatis, basi rotundatis vel subcordatis, utrinque glabris, nervis supra leviter canaliculatis subtus prominenter reticulatis; petiolis 0.5–1.5 cm. longis, pubescentibus; inflorescentiis terminalibus axillaribusque, paniculatis; capitulis heterogamis, 12–14 mm. altis; involucris anguste campanulatis, brevi-calyculatis, glabris; involucri squamis 13, lineari-lanceolatis, 7–8 mm. longis, 1–2 mm. latis; floribus femineis 6–8, ligulis ca. 3 mm. longis, flavis; floribus disci 12–15; achaeniis glabris.

Shrub or stout herb, 1.5 m. high; branches reddish-brown, somewhat striate, sparingly hirtellous to glabrous; leaves alternate, petiolate, oblong-lanceolate to elliptic-lanceolate, 6.5–15 cm. long, 2–6 cm. broad, acuminate, acute, entire to sparingly denticulate, rounded to subcordate at the base, glabrous on both surfaces, veins sunken above, prominently and strongly reticulated beneath; petioles 0.5–1.5 cm. long, pubescent; inflorescence in terminal and axillary panicles; heads heterogamous, 12–14 mm. high; involucre narrowly campanulate, short-calyculate, glabrous; bracts of the involucre about 13, linear-lanceolate, 7–8 mm. long, 1–2 mm. broad; ray-flowers 6–8, rays short, about 3 mm. long; disk-flowers 12–15; achenes glabrous.

PERU: in shrubs along gravelly stream-course, La Merced, alt. about 2000 ft., 10–24 Aug., 1923, *J. Francis Macbride*, no. 5254 (Field Mus. Hb. and Mo. Bot. Gard. Hb.), TYPE.

This species resembles *Senecio semidentatus* Klatt, to which it is unquestionably closely related; it differs, however, in hav-

ing longer and more slender petioles, narrower involucral bracts, shorter bracteoles, and smaller ray-flowers.

Senecio magellanicus Hook. & Arn. in Hook. Jour. Bot. 3: 343. 1841.

Culcitium magellanicum Hombr. & Jacquem. ex Decne. Bot. Voy. Astrol. et Zél., p. 43. 1853; D'Urville, Voy. Pole Sud. & Océanie, Atlas, Dicot., t. 11, figs. X. 1852.

ARGENTINA: "Terres Magellanique," *Lechler* [*A. Lenormand* mis. 1857] (Mo. Bot. Gard. Hb.); Punta Arenas, 10 Feb., 1857, *Lud. Savatier*, no. 82 (Kew Hb.).

Senecio Magnusii Hieron. in Engl. Bot. Jahrb. 28: 642. 1901; Greenm. in Ann. Mo. Bot. Gard. 10: 85. 1923.

COLOMBIA: without specific locality, coll. of 1892, *Triana*, no. 1486 (Berlin Hb., TYPE, fragments and photograph in Mo. Bot. Gard. Hb.); mountain east of Las Vegas, alt. 3000–3330 m., 20–21 Dec., 1926, *Killip & Smith*, no. 15781 (Mo. Bot. Gard. Hb.).

Senecio melanolepis DC. Prodr. 6: 424. 1837; Wedd. Chlor. And. 1: 130. 1855.

This little-known species appears to be well marked by the linear to linear-lanceolate revolute-margined leaves, the radiate heads, and conspicuously black-tipped bracts of the inflorescence, and of the bracts and bracteoles of the involucre. It is well represented by two specimens in the Kew Herbarium which bear the label, "Peruvia. Herb. Pavon. Comm. W. Barbey 7/1888." These specimens agree in all essential details with the original description by De Candolle, and with Weddell's characterization of the species.

Senecio Millei Greenm., n.sp.

Verisimiliter frutex; caulibus foliaceis, brunneis, striatis, juventate floccoso-tomentulosis, denique plus minusve glabris; foliis crebris, alternis, petiolatis, elliptico-ovatis, 3.5–6 cm. longis, 1.5–3 cm. latis, mucronato-acutis, calloso-denticulatis, utrinque floccoso-tomentulosis, plus minusve glabris, atro-viridibus et crebre reticulato-venosis, venis lateralibus subtus arcuato-connatis; inflorescentiis terminalibus, thyr-

soideo-paniculatis, multi-capitatis; capitulis 5–6 mm. altis, homogamis; involucris campanulatis, calyculatis; involucri bracteis 8, ca. 3.5 mm. longis, flocculoso-pubescentibus, aliquanto glabratiss; floribus disci 12–15; achaeniis glabris.

Suffruticose; stem leafy, brownish, striate, floccose-tomentulose, more or less glabrate; leaves crowded, petiolate, elliptic-ovate, 3.5–6 cm. long, 1.5–3 cm. broad, mucronate-acute, rather closely cartilaginous-denticulate, floccose-tomentulose on both surfaces, more or less glabrate, dark green, closely reticulate-veined, lateral veins prominent and conspicuously arcuate-anastomose beneath; inflorescence a terminal many-headed thyrsoidal panicle; heads sessile, small, 5–6 mm. high, homogamous; involucre campanulate, calyculate; bracts of the involucre 8, about 3.5 mm. long, lightly flocculent-pubescent, more or less glabrate; flowers discoid, 12–15; achenes glabrous.

ECUADOR: Loja, coll. of Aug., 1847, *Seemann*, s.n. (Kew Hb.), TYPE.

This species is named in honor of Rev. Father Luis Mille, a distinguished botanist of Ecuador; it is related to *Senecio theaeifolius* Benth., from which, however, it differs in having a more pronounced reticulate leaf-venation, shorter involucre bracts, and a flocculent tomentum on stem and leaves.

Senecio Millei suggests also a relationship with *S. Brittonianus* Hieron., particularly in the characters of the inflorescence and tomentum; but it differs in having smaller and discoid instead of radiate heads, smaller and distinctly denticulate leaves with a close but conspicuous leaf-venation.

Senecio modestus Wedd. Chlor. And. 1: 105, pl. 18, fig. B. 1855.

BOLIVIA: without specific locality, *Bang*, no. 1890 (Mo. Bot. Gard. Hb., Phil. Acad. Nat. Sci. Hb., Gray Hb., U. S. Nat. Hb., Mus. Nat. Hist. Hb., Vienna); near Luipichi, 9 Sept., 1901, *R. S. Williams*, no. 836 (N. Y. Bot. Gard. Hb.).

PERU: Viso, in shallow soil, on rocks, alt. 9000 ft., 5–14 May, 1922, *Macbride & Featherstone*, no. 610 (Field Mus. Hb.).

Senecio nevadensis Schz. Bip. ex Wedd. Chlor. And. 1: 97. 1855.

VENEZUELA: Páramo de la Culata, *Moritz*, no. 1383 (Bot. Mus. Hamburg Hb.); Michuntuy, Culata Range, Merida, alt. 4000 m., 17 Dec., 1910, *Alfredo Jahn*, no. 131a (U. S. Nat. Hb.).

Senecio octophyllus Schz. Bip. in *Linnaea* 34: 531. 1866, name only; Rusby in Bull. N. Y. Bot. Gard. 4: 393. 1907, with description.

Senecio olophyllus Schz. Bip. in Bull. Soc. Bot. Fr. 12: 80. 1865, name only.

BOLIVIA: vicinity of Sorata, alt. 3400–3900 m., Feb.–March, 1859, *Mandon*, no. 118 (N. Y. Bot. Gard. Hb.); without definite locality or date of collection, *Bang*, s.n. (N. Y. Bot. Gard. Hb.).

PERU: Nevado de Chachani, Dep't. of Arequipa, rock-clefts in open valley, alt. 4100–4200 m., April, 1925, *Pennell*, no. 13296 (Field Mus. Hb.).

The name originally ascribed to Mandon's no. 118 by Schultz Bipontinus in the 'Bulletin de la Société Botanique de France' in 1865 was "*Senecio olophyllus*"; but no description of it was given. In 'Linnaea' of 1866, Mandon's no. 118 was listed as "*Senecio octophyllus*," again without description.

The change of specific name was probably due to a typographical error, since the plant is very leafy and the leaves are densely whitish tomentose. The original specific name was doubtless intended to carry the connotation of *silver-leaved*, not *eight-leaved*. However, the combination *Senecio octophyllus* was validated through the publication of a description by Professor Rusby in the 'Bulletin of the New York Botanical Garden' in 1907; thus, in accordance with present rules of botanical nomenclature, *Senecio octophyllus* becomes the correct binomial for this plant, and the original name "*Senecio olophyllus*" falls to synonymy, as a *nomen nudum*.

Senecio pachypus Greenm., n.sp.

Frutex; cauli tereti, aliquanto irregulariter sed plus minusve di-trichotomoso-ramoso, juventate fulvo-hirsuto deinde glabrato sed subcaticoso; foliis crebris, brevi-petiolatis, oblongo vel oblongo-ellipticis, 5–10 mm. longis, 3–6 mm. latis, obtusis, proxime et regulariter crenato-dentatis, in sinis marginatis foliorum paululo pubescentibus, basi in petiolum subito

contractis, utrinque glabris, supra plus minusve lucidis, subtus livido-viridibus; petiolis usque ad 2 mm. longis, subcoriaceis et persistentibus; inflorescentiis terminalibus, corymboso-cymosis, pauci-capitatis; capitulis heterogamis, radiatis; involucris campanulatis, calyculatis, bracteolis subcoriaceis ciliatisque; involucri squamis plerumque 13, lineari-lanceolatis, 4–5 mm. longis; floribus femineis ligulatis, ca. 8, ligulis pallide flavis; floribus disci 20–22; achaeniis glabris.

Shrub; stem somewhat irregularly branched, more or less di-trichotomous, tawny-pubescent with coarse stiff hairs, slightly roughened by the persistent cartilaginous-thickened remains of the petioles; leaves crowded, short-petiolate, oblong to oblong-elliptic, 5–10 mm. long, 3–6 mm. broad, obtuse, closely and regularly crenate-dentate, abruptly contracted at the base into a relatively broad 1–2 mm. long petiole, glabrous except for tufts of minute dark hairs in the leaf-sinuses and scattered hairs on the sunken midrib, more or less lucid above, dull green beneath; inflorescence terminating the stem and branches in few-headed round-topped corymbose cymes; heads heterogamous, radiate; involucre campanulate, calyculate with rather broad thickish ciliolate bracteoles; bracts of the involucre 13, linear-lanceolate, 4–5 mm. long; ray-flowers 8, rays lemon yellow; disk-flowers 20–22; achenes glabrous.

VENEZUELA: in Colorado forest, Páramos de Laguna Grande, Merida, 21 Jan., 1929, *H. Pittier*, no. 13243 (Mo. Bot. Gard. Hb., TYPE); Páramo Quirorá, alt. 3200 m., 9 Oct., 1921, *Alfredo Jahn*, no. 709 (U. S. Nat. Hb.); Páramo del Molino, Merida, alt. 2600 m., *Alfredo Jahn*, no. 953 (U. S. Nat. Hb.); "entre las Lagunas El Yoho y de Barrios," alt. 4000–4150 m., Merida, 19 April, 1930, *Gehriger*, no. 88 (Mo. Bot. Gard. Hb.); Páramo de Tuñame, alt. 3280 m., 24 Nov., 1910, *Alfredo Jahn*, no. 60 (U. S. Nat. Hb.).

The last specimen cited has more or less ciliated leaves; but it probably represents only a slight variation of the species.

Senecio Pampae Lingelsheim in Fedde, Rep. Nov. Sp. 8: 6. 1910.

BOLIVIA: Pazna, $18\frac{1}{2}^{\circ}$ S. latitude, alt. 4000 m., May, 1908,

Otto Buchtien, no. 1582 (Berlin Hb., N. Y. Bot. Gard. Hb., fragment and photograph Mo. Bot. Gard. Hb.); near summit of pass, Oruro-Cochabamba Railway, 16 March, 1920, *E. W. D. & Mary Holway*, no. 414 (U. S. Nat. Hb.); Cuchichanchi, alt. 3200 m., 21 July, 1929, *José Steinbach*, no. 9873 (Mo. Bot. Gard. Hb.).

ARGENTINA: Maimara, Prov. of Jujuy, 20 Jan., 1906, *ex Hb. Lillo*, no. 4917 (Mo. Bot. Gard. Hb.); between rocks, Prov. of Tucuman, alt. 3200 m., 4 April, 1901, *Lillo*, s.n. (Mo. Bot. Gard. Hb.); Olfarcito, Prov. of Jujuy, alt. 2650 m., 30 Sept., 1925, *Pereyra*, no. 5825 (Mo. Bot. Gard. Hb.).

Senecio pellucidinervis Schz. Bip. ex Baker in Mart. Fl. Bras. 6³: 319. 1884; Greenm. in Ann. Mo. Bot. Gard. 10: 88. 1923.

BRAZIL: Campos do Jordão, *Löfgren* [*Hoehne*], no. 16955 (Mo. Bot. Gard. Hb.); Campos do Jordão, Sierra Mantiquera, São Paulo, 20–22 May, 1925, *Agnes Chase*, no. 9884 (Mo. Bot. Gard. Hb.); Itatiaya, *Brade & Tomandari*, no. 6390 [*Hoehne*, no. 6280] (Mo. Bot. Gard. Hb.).

Senecio pensilis Greenm., n. sp.

Herbaceus perennis, ubique albo-tomentosis; caulibus gracilibus, 2–6 dm. longis, plus minusve pendentibus, ad apicem aliquanto ascendentibus; foliis alternis, petiolatis, lanceolato-ovatis, 1–3.5 cm. longis, 0.5–2 cm. latis, basi cuneatis vel subtruncatis, subintegris aut dentatis, acutis, supra arachnoideo-tomentulosis, subtus dense albo-tomentosis; petiolis gracilibus paulo marginatisque, 0.5–1.5 cm. longis, basi frequenter inconspicueque aliquanto amplexicaulibus; inflorescentiis terminalibus, longi-pedunculatis, plus minusve nutantibus, corymbosocymosis; capitulis ca. 1 cm. altis, heterogamis, ligulatis; involucris calyculatis; involucris squamis ca. 21, ad apicem subglabris purpurascensibusque, ceteris albo-tomentosis; floribus femineis ca. 8, ligulis flavis; floribus disci 40–60; achaeniis glabris.

Suffruticose, white-tomentose throughout; stems slender, 2–6 dm. long, more or less pendent, somewhat ascending at the tips; leaves petiolate, lanceolate-ovate, 1–3.5 cm. long, 0.5–2

cm. broad, cuneate to subtruncate at the base, subentire to dentate, acute, arachnoid-tomentulose above, densely white-tomentulose beneath; petioles slender and slightly margined by the decurrence of the leaf-blade, 0.5–1.5 cm. long, often inconspicuously auriculate and somewhat amplexicaul at the base; inflorescence terminating the stem and branches on nearly naked long-pedunculate more or less nodding corymbose cymes; heads about 1 cm. high, heterogamous, radiate; involucre calyculate; bracts of the involucre about 21, white-tomentulose except at the purplish tip; ray-flowers about 8, rays yellow; disk-flowers 40–60; achenes glabrous.

BOLIVIA: "Pelechuco," alt. 12000–14000 ft., March and May, 1865, *R. Pearce, s.n.* (Kew Hb., TYPE, British Mus. Hb.).

PERU: Vilcacota, July, 1833, *Alexander Mathews*, no. 1131 (Kew Hb.); Rio Blanco, alt. 15000 ft., May 8–19, 1922, *Macbride & Featherstone*, no. 796 (Field Mus. Hb.).

According to Macbride and Featherstone, this plant grows in a rather unusual habitat, namely, "pendant from canyon rock crevices."

Senecio pericaulis Greenm. in Ann. Mo. Bot. Gard. 10: 89. 1923.

In addition to the specimens recorded in the above publication, the following collections are referred to this species:

ECUADOR: hills near Cuenca, date of collection not indicated, *Jameson*, no. 26 (Kew Hb.); base of Pilzheim, alt. 12000 ft., without date, *Jameson, s.n.* (Kew Hb.); Pichincha, alt. 13000 ft., *Jameson, s.n.* (Mus. Nat. Hist. Hb., Vienna, sheet no. 122720).

Senecio pichinchensis Greenm., n.sp.

Frutex; ramis ramulisque juventate hirsuto-pubescentibus, denique aliquod glabratis; foliis alternis, petiolatis, oblongo-ovatis aut subrotundatis, 5–10 mm. longis, 3–10 mm. latis, apici obtusis aut rotundatis, 3–5-crenato-dentatis, plus minusve revolutum-marginatis, utrinque glabris, subcoriaceis, nervo medio et nervis lateralibus supra depressis, subtus prominulis; petiolis 1–2 mm. longis, basi plus minusve persistentibus; inflores-

centiis terminalibus, paniculato-cymosis; capitulis heterogamis, 10–12 mm. altis, radiatis; involucris campanulatis, conspicue bracteolatis, bracteolis linearibus, patentibus; involucris squamis plerumque 13, lineari-lanceolatis, ca. 6 mm. longis, extrinsecus glabris, apici penicillatis; floribus femineis 8, ligulatis, ligulis anguste oblongis, ca. 7 mm. longis, 2–2.5 mm. latis, flavis; floribus disci 13–16; achaeniis glabris.

Shrub; stem and branches in the earlier stages hirsute-pubescent, later somewhat glabrate; leaves alternate, petiolate, oblong-ovate to subrotund, 5–10 mm. long, 3–10 mm. broad, obtuse or rounded at the apex, crenate-dentate with few (3–5) blunt teeth, more or less revolute-margined, glabrous on both surfaces, thick in texture, midvein and lateral nerves sunken above, distinct beneath; petioles 1–2 mm. long, base more or less persistent; inflorescence terminating the stem and branches in rather leafy paniculate cymes; heads heterogamous, radiate, 10–12 mm. high; involucre campanulate, conspicuously bracteolate, bracteoles linear, spreading; bracts of the involucre 13, linear-lanceolate, about 6 mm. long, glabrous except the penicillate tip; ray-flowers 8, rays narrowly oblong, about 7 mm. long, 2–2.5 mm. broad, yellow; disk-flowers 13–16; achenes glabrous.

ECUADOR: ravines, western slope of Pichincha, alt. 13000 ft., without date of collection, *W. Jameson*, no. 24 (British Mus. Hb., TYPE, Mus. Nat. Hist. Hb., Vienna, and U. S. Nat. Hb.); near Quito, alt. 12000 ft., without date of collection, *W. Jameson*, s.n. (British Mus. Hb.).

***Senecio pimpinellaefolius* HBK.** Nov. Gen. & Sp. Pl. 4: 174. 1820.

PERU: Chachapoyas, coll. of 1837, *Mathews*, no. 3054 (British Mus. Hb. and Brussels Hb.).

***Senecio polyphyllus* Kunze** in Poepp. "Coll. Pl. Chile 3, no. 196" [Coll. pl. exsic. Chil. 3, no. 196]; DC. Prodr. 6: 415. 1837.

PERU: Cuajones Mine, Torata, Prov. of Moquegua, 10 Feb., 1925, *Weberbauer*, no. 7466 (Field Mus. Hb. and Mo. Bot. Gard. Hb.).

CHILE: Pico de Pilque, Andes de Antuco, *Poeppig*, no. 196 (British Mus. Hb.); southern Andes, 8 Dec., 1828, *Poeppig*, s.n. (Mo. Bot. Gard. Hb.).

Senecio praeruptorum Schz. Bip. in Bull. Soc. Bot. Fr. 12: 80. 1865, name only; *Linnaea* 34: 530. 1866, name only; Klatt in *Leopoldina*, Heft 24, p. 127. 1888, with description.

BOLIVIA: vicinity of Sorata, alt. 3300–3600 m., 8 April, 1858, *G. Mandon*, no. 115 (N. Y. Bot. Gard. Hb.); Pelechuco, alt. 12000 ft., March, 1865, *R. Pearce* (Kew Hb.).

Senecio pulchellus (HBK.) DC. Prodr. 6: 421. 1837; Wedd. Chlor. And. 1: 100. 1855.

Cacalia pulchella HBK. Nov. Gen. & Sp. Pl. 4: 160. 1820.

COLOMBIA: without specific locality, coll. of 1842, *Linden*, no. 1251 (Mus. Nat. Hist. Hb., Vienna); Norte de Santander, road from Pamplona to Toledo, crossing the divide between La Teja (Maracaibo drainage) and Rio Mesme (Orinoco drainage), alt. 2500–2800 m., 28 Feb., 1927, *E. P. Killip & Albert C. Smith*, no. 19912 (Mo. Bot. Gard. Hb.); without specific locality, coll. of 1760–1808, *José Celestino Mutis*, nos. 243, 1824, and 4863 (U. S. Nat. Hb.).

Senecio rhizomatus Rusby in Mem. Torr. Bot. Club 6: 66. 1896, excluding *Bang*, no. 1046.

S. erosus Wedd. Chlor. And. 1: 228. 1855; Bull. Soc. Bot. Fr. 12: 80. 1865; *Linnaea* 34: 530. 1866, not *S. erosus* Linn f. Suppl. p. 370. 1781.

BOLIVIA: near snow line, Mt. Tunari, coll. of 1891, *Bang*, no. 1050 (N. Y. Bot. Gard. Hb., Phil. Acad. Nat. Sci. Hb., Mo. Bot. Gard. Hb., and Mus. Nat. Hist. Hb., Vienna), type collection of *S. rhizomatus* Rusby; vicinity of La Paz, alt. 5000 ft., 15 April, 1857, *Mandon*, no. 114 (N. Y. Bot. Gard. Hb.), type collection of *S. erosus* Wedd.; vicinity of Sorata, alt. 3300–4500 m., 8 Feb., 1858, *Mandon*, no. 114 (N. Y. Bot. Gard. Hb.).

Bang's no. 1046, mentioned by Rusby, l.c., is *Senecio Klattii* Greenm.

Senecio Richii Gray in Proc. Am. Acad. 5: 142. 1861.

PERU: Obrajillo, *U. S. Exploring Exp. under command of Capt. Wilkes*, s.n. (U. S. Nat. Hb.); open rocky slope, Canta,

Dep't. of Lima, alt. 2800–2900 m., 11–19 June, 1925, *Francis W. Pennell*, no. 14578 (Field Mus. Hb., Mo. Bot. Gard. Hb.); open rocky slopes, along Rio Chillón, above Obrajillo, Dep't. of Lima, 13–23 June, 1925, *Francis W. Pennell*, no. 14380 (Field Mus. Hb. and Mo. Bot. Gard. Hb.).

Senecio Richii Gray var. **latior** Greenm., n. var.

S. Richii var. β . Gray in Proc. Am. Acad. 5: 142. 1861.

Formae typicae habitu simili; foliis superioribus subpinnatisectis vel laciniatis, supra glabris, subtus arachnoideotomentulosis; laciniis foliorum lineari-acuminatis, usque ad 1 cm. longis, acutis, plus minusve curvatis.

Similar to the species, but with less pinnatisect leaves and broader leaf-lobes, more or less white arachnoid-tomentulose on the under leaf-surface.

PERU: Obrajillo, *U. S. Expl. Exp. under command of Capt. Wilkes, s.n.* (U. S. Nat. Hb., sheet no. 1121675), TYPE.

Senecio scaphiformis Greenm., n.sp.

Frutex, usque ad 5 m. altus; caulibus fusco-brunneis, striatis, tomentuloso-pubescentibus; foliis alternis, petiolatis, ovatis vel ovato-oblongis, 6–12 cm. longis, 4–6.5 cm. latis, basi cuneatis vel rotundatis, sinuato-dentatis, acutis, supra glabris vel subglabris, subtus sparse crispo-pubescentibus et conspicue venosis; petiolis 0.5–2 cm. longis; inflorescentiis paniculatis terminalibus; inflorescentiae bracteis foliaceis, subpetiolatis, obovatis, plus minusve scaphiformibus et aliquanto suffultis; capitulis heterogamis, radiatis, 10–12 mm. altis; involucris anguste campanulatis, calyculatis; involucri squamis 8, lineari-lanceolatis, ca. 7 mm. longis, flocculoso-tomentulosis; floribus femineis 8, ligulis anguste oblongis, ca. 8 mm. longis, 4-nervatis, flavis; floribus disci 10–12; achaeniis glabris.

Shrub 5 m. or less high; branches reddish-brown, striate, minutely pubescent; leaves alternate, petiolate, ovate to ovate-oblong, 6–12 cm. long, 4–6.5 cm. broad, cuneate to rounded at the base, sinuate-dentate, acute, glabrous or nearly so above, sparingly pubescent beneath, prominently veined; petioles 0.5–2 cm. long; inflorescence a terminal panicle; bracts of the inflorescence foliaceous, subpetiolate, obovate, more or less boat-

shaped and somewhat suffultous; heads heterogamous, radiate, 10–12 mm. high; involucre narrowly campanulate, calyculate; bracts of the involucre 8, linear-lanceolate, about 7 mm. long, flocculose-tomentulose; ray-flowers 8, rays narrowly oblong, about 8 mm. long, 4-nerved, yellow; disk-flowers 10 to 12, yellow; achenes glabrous.

COLOMBIA: in dense forests of the Central Andes, Popayán, alt. 2800–3300 m., March, 1901, *F. C. Lehmann*, no. *B.T.* 493 (Kew Hb., TYPE, N. Y. Bot. Gard. Hb., photograph of type in Mo. Bot. Gard. Hb.).

Senecio Sepium Schz. Bip. in Bull. Soc. Bot. Fr. 12: 80. 1865, name only; Linnaea 34: 531. 1866, name only; Rusby in Bull. N. Y. Bot. Gard. 4: 394. 1907, in part, as to *Mandon*, no. 133, not as to plant of *Bang*.

Heads heterogamous, 8–10 mm. high, radiate; involucre campanulate, calyculate, glabrous; bracts of the involucre about 13, glabrous and, as well as the bracteoles, purplish or black towards the apex; ray-flowers usually 8, tube slender, rays narrowly oblong, 5–6 mm. long; disk-flowers about 35; mature achenes 2 mm. long, hirtellous.

BOLIVIA: vicinity of Sorata, alt. 2650–3700 m., 8 June, 1859, *Mandon*, no. 133 (N. Y. Bot. Gard. Hb. and Mus. Nat. Hist. Hb., Vienna).

The Bang plant to which Dr. Rusby referred, following the original description of the species, although a rather imperfect specimen, is unquestionably an *Erechtites*.

Senecio sinuatilobus DC. Prodr. 6: 417. 1837.

CHILE: Valparaiso, coll. of 1856–1857, *Germain*, s.n. (Mus. Nat. Hist. Hb., Vienna); Fray Jorge, Dep't. of Ovalle, Prov. of Coquimbo, alt. 500 m., Nov., 1925, *Werdermann*, no. 926 (Field Mus. Hb. and Mo. Bot. Gard. Hb.); San Antonio, Dep't. of San Antonio, Prov. of Santiago, 16 Oct., 1927, *Montero*, no. 211 (Mo. Bot. Gard. Hb.).

Senecio sotarensis Hieron. in Engl. Bot. Jahrb. 21: 360. 1895.

COLOMBIA: Volcan Sotará, Feb., 1869, *A. Stübel*, no. 3392 (Berlin Hb., fragment and photograph in Mo. Bot. Gard. Hb.).

ECUADOR: in ravines near Quito, *Jameson*, no. 856 (Kew Hb.); in Valley Lloa, near Quito, Sept., 1918, *Luis Mille*, no. 733 (N. Y. Bot. Gard. Hb.).

Senecio stigophlebius Baker in Mart. Fl. Bras. 6³: 321. 1884.

BRAZIL: without definite locality, *Sello* [*Sellow*], no. 2187 (Gray Hb., *co-type*); vicinity of Itatiaya, 26–30 July, 1915, *Rose & Russell*, nos. 20504 and 20549 (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.).

Senecio subcandidus Gray in Proc. Am. Acad. 5: 141. 1861.

PERU: Obrajillo, *U. S. Expl. Exp. under command of Capt. Wilkes, s.n.* (U. S. Nat. Hb.), TYPE; Guamautanga, June, 1838, *Barclay*, no. 2288 (British Mus. Hb.); Mutucana, alt. about 8000 ft., 12 April–3 May, 1922, *Macbride & Featherstone*, nos. 156, 160, 177, and 414 (Field Mus. Hb.); open rocky slope, Canta, Dep't. of Lima, alt. 2700–3200 m., *Pennell*, no. 14337 (Field Mus. Hb.).

Senecio suglomerosus Greenm. in Ann. Mo. Bot. Gard. 10: 93. 1923.

PERU (?): "western South America, woods about Sta. Cruz, alt. 6–8000 ft.," July, 1865, *Richard Pearce, s.n.* (British Mus. Hb. and Kew Hb.).

Senecio tephrosioides Turcz. in Bull. Soc. Nat. Mosc. 24²: 92. 1851.

Senecio subdecurrens Schz. Bip. ex Wedd. Chlor. And. 1: 109. 1855; Schz. Bip. in Bonplandia 4: 55. 1856; Greenm. in Ann. Mo. Bot. Gard. 10: 93. 1923.

ECUADOR: Sangai(?), *Karsten* (Mus. Nat. Hist. Hb., Vienna); "Andium Quitensium," alt. 13000 ft., *W. Jameson*, no. 556 (Mus. Nat. Hist. Hb., Vienna).

From the characters recorded in the original descriptions and from the material at hand, I am unable to distinguish the above as distinct species. Therefore, I have taken the earlier published name.

Senecio teretifolius (HBK.) DC. Prodr. 6: 420. 1837.

Cacalia teretifolia HBK. Nov. Gen. & Sp. Pl. 4: 159, pl. 357. 1820.

ECUADOR: Quito, *Karsten*, s.n. (Mus. Nat. Hist. Hb., Vienna); Asuai, *Karsten*, s.n. (Mus. Nat. Hist. Hb., Vienna).

CHILE: Cordil. de Santiago, coll. of 1856–1857, *Germain* (Mus. Nat. Hist. Hb., Vienna).

Senecio tolimensis Schz. Bip. ex Wedd. Chlor. And. 1: 98–99. 1855.

COLOMBIA: without definite locality, coll. of 1760–1808, *José Celestino Mutis*, no. 1787 (U. S. Nat. Hb.).

Senecio trichopus (Benth.) Greenm., n. comb.

Microchaete trichopus Benth. Pl. Hartw. p. 209. 1845.

Senecio pulchellus β . *trichopus* Wedd. Chlor. And. 1: 100. 1855.

COLOMBIA: Prov. of Popayán, *Hartweg*, no. 1163 (N. Y. Bot. Gard. Hb.), part of type collection; headwaters of Rio Lopez, Rio Palo Basin, Tierra Adentro, alt. 2500–3000 m., 24 Jan., 1906, *H. Pittier*, no. 1085 (U. S. Nat. Hb.).

Senecio tristis Phil. var. ***Comberi*** Greenm., n. var.

Plantae suffruticosae, ubique hirsuto-glandulosae; caulibus ascendentibus, usque ad 3 dm. altis; foliis crassulis, oblanceolatis vel oblongo-oblanceolatis, 1.5–3 cm. longis, 3–13 mm. latis, plerumque mucronatis, integris vel versus apicem paucidentatis; capitulis homogamis aut radiatis; involucris campanulatis, paulo calyculatis, 1.3–1.5 cm. altis; involucris squamis 21, lineari-lanceolatis, attenuatis, 10–12 mm. longis; floribus femineis (si adsint) ca. 13, ligulis anguste oblongis, flavis; floribus disci ca. 45; achaeniis glabris vel minute hirtellis.

Plant suffruticose, hirsute-glandular throughout; stems ascending, 1–3 dm. high; leaves fleshy, oblanceolate to oblong-oblanceolate, 1.5–3 cm. long, 3–13 mm. broad, usually mucronate, entire or few-toothed toward the apex; heads discoid or radiate; involucre campanulate, 1.3–1.5 cm. high, sparingly calyculate; bracts of the involucre about 21, linear, attenuate, 10–12 mm. long; ray-flowers, when present, about 13, rays narrowly oblong, yellow; disk-flowers about 45; achenes glabrous or minutely hirtellous.

ARGENTINA: Andes Expedition, 38°–41° S., “Norquinco

P.,'' alt. 3700 ft., 12 Feb., 1926, *H. F. Comber*, no. 533 (Kew Hb., TYPE, photograph in Mo. Bot. Gard. Hb.).

CHILE: Aguas Calientes, Baños de Chillan, Prov. of Nuble, alt. about 2200 m., *E. Werdermann*, no. 1320 (Berlin Hb. and Mo. Bot. Gard. Hb.).

The present variety differs from the species, as it was described originally, in having longer stems, larger leaves, radiate instead of discoid heads, and in having 21 instead of 12 involucral bracts. The writer feels that the plant concerned represents only an extreme variation of the Philippi species.

Senecio Urbani Hieron. in Engl. Bot. Jahrb. **28**: 640. 1901.

COLOMBIA: Prov. of Popayán, *Triana*, no. 1489 (Berlin Hb., TYPE, fragment and photograph in Mo. Bot. Gard. Hb., Mus. Nat. Hist. Hb., Vienna); Las Cañas, 23 Nov., 1853, *I. F. Holton*, no. 386 (N. Y. Bot. Gard. Hb.); without specific locality, coll. of 1760–1808, *José Celestino Mutis*, no. 237 (U. S. Nat. Hb.); La Cumbre, Dep't. of El Valle, Cordillera Occidental, alt. 1500–1700 m., 11–16 July, 1922, *Hazen*, no. 11835 (U. S. Nat. Hb.); grassy slopes, west of Salento, Dep't. of Caldas, Cordillera Central, alt. 1600–1900 m., 25–31 July, 1922, *Killip & Hazen*, no. 8769 (U. S. Nat. Hb.); forest below Magana, Old Quindio Trail, Cordillera Central, Dep't. of Caldas, alt. 3000–3200 m., 1–2 Aug., 1922, *Killip & Hazen*, no. 9483 (U. S. Nat. Hb.); open trail, La Cumbre, Dep't. of El Valle, Cordillera Occidental, alt. 1600–1800 m., *Killip*, no. 11413 (U. S. Nat. Hb.).

Senecio vaccinioides (HBK.) Schz. Bip. ex Wedd. Chlor. And. **1**: 99. 1855.

COLOMBIA: without definite locality, coll. of 1842, *Linden*, no. 741 (Mus. Nat. Hist. Hb., Vienna).

Senecio vaccinioides (HBK.) Schz. Bip. var. **pruinosa** Wedd. Chlor. And. **1**: 99. 1855.

COLOMBIA: without definite locality, coll. of 1760–1808, *José Celestino Mutis*, no. 1817 (U. S. Nat. Hb.).

Senecio verticillatus Klatt in Abhl. Naturf. Ges. Halle **15**: 331. 1882.

PERU: Chachapoyas, coll. of 1836, *Mathews*, no. 105. (Kew Hb.).

The specimen here cited agrees with the original description of this species; moreover, it comes from the type locality and in all probability is a part of the collection on which the species was founded. The leaf-bases are persistent and cause a roughness of the stem which, however, is otherwise glabrous as described by Dr. Klatt. That the species is a variable one is indicated by several specimens collected by Mr. Mathews at Chachapoyas and other stations. One variant with conspicuously hirsute-setose branches and branchlets seems worthy of varietal designation.

***Senecio verticillatus* Klatt var. *trichophorus* Greenm., n. var.**

Frutex; ramis ramulisque juventate hirsuto-setosis denique plus minusve glabratis; ramis aliquanto secundis.

PERU: Chachapoyas, without date of collection, *Mathews*, s.n. (Kew Hb., TYPE); Bajasan, coll. of 1835, *Mathews*, no. 1375 (Kew. Hb.); without definite locality, *Mathews*, s.n. (U. S. Nat. Hb., sheet no. 245952).

***Senecio Werdermannii* Greenm., n. name.**

Senecio modestus Philippi in *Linnaea* 28: 745. 1856, not *S. modestus* Wedd. Chlor. And. 1: 105, pl. 18, fig. B. 1855.

CHILE: Cordilierès de Santiago, coll. of 1856-1857, *Germain*, s.n. (Mus. Nat. Hist. Hb., Vienna); Fierro Carrera, Cord. Rio San Francisco, Prov. of Santiago, alt. 3200 ft., *Werdermann*, no. 645 (Field Mus. Hb. and Mo. Bot. Gard. Hb.).

***Senecio yurensis* Rusby in Bull. N. Y. Bot. Gard. 8: 133. 1912.**

PERU: near Arequipa, 8 Aug., 1914, *Mr. & Mrs. J. N. Rose*, no. 18830 (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.); Vincocaya, 21 Aug., 1914, *Mr. & Mrs. J. N. Rose*, no. 18947 (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.).

CONTRIBUTIONS TOWARD A FLORA OF PANAMA¹

II. MISCELLANEOUS COLLECTIONS DURING 1936-1938

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Among the most interesting botanical collections made in Panama during the year 1937 is a series of approximately seventy-five numbers sent the Missouri Botanical Garden by Gene and Peggy White. Although a part of these specimens is from the Canal Zone, the majority was secured from the neighborhood of the upper Río Chiriquí Viejo watershed in the Province of Chiriquí, a locality visited in the summer of 1935 by R. E. Woodson, Jr. and R. J. Seibert (cf. *Ann. Missouri Bot. Gard.* **24**: 175-210. 1937). A surprising proportion of this collection consists of novelties or additions to the known flora of Panama.

The present report also includes miscellaneous collections made in various localities in Panama by P. H. Allen, Manager of the Missouri Botanical Garden Tropical Station, Balboa, C. Z. Of these, perhaps greatest interest is attached to a representative series of plants collected in the valleys of Río Tuyra and Río Yape, in the Province of Darien. An interesting account of Allen's experiences during this trip is printed in *Missouri Bot. Gard. Bull.* **25**: 114-122. 1937. Unfortunately a portion of this collection, together with the great majority of a collection of some 1,200 numbers secured during the summer of 1937 by Woodson, Allen, and Seibert, was destroyed by a fire which badly damaged the administration building of the Tropical Station in Balboa the night of September 1, 1937.

¹ Issued November 28, 1938.